THROWING DISC TOY

Field of the Invention

[0001] This invention relates to a throwing disc and more particularly to an improvement to a design to increase at least one of lift and distance for a thrown disc.

Detailed Description of Related Art

[0002] The Whamo(™) Corporation has marketed and sold a product known as the Frisbee(™) for many years. This device is a circular throwing disc with a curved lip. The device is believed to rely on its aerodynamic shape to provide a hovering capability as it is thrown and spins. U.S. Patent No. 4,176,843 is one that shows an improvement to this basic design.

[0003] While throwing discs are certainly a popular toy, the applicant believes that if it were made to be more aerodynamic then even greater enjoyment could be had. Accordingly, it is believed to be a need to provide a more aerodynamic toy.

Summary of the Invention

[0004] Accordingly, it is an object of the present invention to provide a throwing disc with improved aerodynamic capability.

[0005] It is another object of the present invention to provide a throwing disc having a plurality of evenly spaced scoops which are believed to impart an additional element of lift to the disc when thrown in a particular direction.

[0006] Another need exists to provide a circumferentially weighted throwing disc.

[0007] Accordingly, a throwing disc of the preferred embodiment provides a plurality of evenly spaced scoops about a top surface, said scoops receiving an inflow of air therein from the top surface and directing the air through each of the scoops to below a bottom surface of the disc thereby assisting in generating lift upon rotation of the disc. Scoops could include two, three,

four or more evenly spaced scoops. Additionally, the disc may be weighted around a periphery such as with a removable metal wire. The additional weight has been found helpful to assist in the distance that the disc may be propelled. When combining the added weight with additional lift, longer distances are believed to be possible than with the unimproved prior art designs.

Brief Description of the Drawings

[0008] The particular features and advantages of the invention as well as other objects will become apparent from the following description taken in connection with the accompanying drawings in which:

Figure 1 is a top plan view of a throwing disc of the presently preferred embodiment of the present invention;

Figure 2 is a side view of the disc of Figure 1;

Figure 3 is a cross-sectional view of the disc shown in Figure 1 taken along the line A-A showing the wire;

Figure 4 is an alternatively preferred embodiment of the disc as shown in Figure 1 designed for left handed use;

Figure 5 is a side view of the alternative embodiment of Figure 4;

Figure 6 is a cross-sectional view taken along the line B-B of Figure 4;

Figure 7 is a top plan view of the wire when inserted in the disc as shown in Figures 3 and 6;

Figure 8 is a top plan view of the wire prior to inserting into the disc of the present invention;

Figure 9 shows two people enjoying the present invention;

Figure 10 shows a single person enjoying the present invention; and

Figure 11 shows a second alternatively preferred embodiment having a slightly different scoop configuration as soon from a top plan view;

Figure 12 is a first embodiment of a mouth for use with the embodiment of Figure 11; and

Figure 13 is a second embodiment of a mouth for use with the embodiment shown in Figure 11.

Detailed Description of the Preferred Embodiment

[0009] Figures 1-3 and 7-10 relate to a first preferred embodiment of the present invention. Figures 4-10 relate to an alternatively preferred embodiment. Additionally, in the presently preferred embodiment and the alternatively preferred embodiment is directed to a right handed throwing operation while the alternatively preferred embodiment is directed to a left handed throwing operation as will be understood in the explanation provided below.

[00010] Figure 1 is a top plan view of a disc **1**. Disc **1** has a top surface **20** with a plurality of scoops **2,3,4,5** extending at least partially therefrom. The scoops **2,3,4,5** are characterized by a mouth **22** and a tail **24** spaced apart by sides **25,27**.

[00011] The scoops **2,3,4,5** are equally spaced about an intermediate circumference of the disc **1**. Although four scoops are illustrated, **2,3,4,5**, more scoops **2,3,4,5** may be utilized in other embodiments. When utilizing an even number of scoops **2,3,4,5**, it is anticipated that scoop pairs such as pair **2,4** and pair **3,5** will be arranged. The pairs **2,4** and **3,5** are each comprised of scoops **2,4** and **3,5** which are located along a diameter of the disc **1**.

[00012] Figure 2 shows a side plan perspective. Scoop **4** is shown extending from a tail **24** to a mouth **22**. The mouth **22** extends a distance above the top surface **20** of the disc **1** as illustrated. The tail **24** in the preferred embodiment contacts the top surface **20** as shown. The mouth **22** is

shown with respect to scoop **2** whereas the tail **24** is obscured from view in Figure 2 since a passage **26** is created intermediate the mouth **22** and the top **20** of the disc. The passage **26** communicates fluid from above the top surface **20** to a bottom surface **28** as shown in Figure 3.

[00013] Accordingly, when thrown by a right handed thrower, the disc is spun clockwise as it is thrown. The mouths **22** are directed into the air whereby air enters into the mouth **22,** passes through the passage **26** and passes down below the bottom surface **28** of the disc. As the air passes into the passage **26**, it encounters the angled and/or curved surface **30** of the underside of the scoop as shown in Figure 2 and is directed downwardly down below the bottom surface **28** as the air proceeds from the mouth **22** towards the tail **24** of each of the scoops.

[00014] By pushing air from the top **20** of the disc **1** to a bottom **28** of the disc **1**, increased lift is believed to occur over a traditional design.

[00015] Figure 3 is a cross sectional view of a disc **1**. A weighted member **7** is shown in an installed position in Figure 3 interior to an outer perimeter of a curved lip **32** which downwardly extends from the top **20** and passes the bottom surface **28** of the disc **1**. The lip is preferably curved wherein it assists in retaining the weighted member **7** in position. Figures 7 and 8 show the weighted member **7.** Figure 8 shows the curved wire removed from the disc in a sprung configuration. Figure 7 shows the weighted member **7** in tension so that it would remain connected to the lip **32** by spring action. Of course, other weighting and connection techniques could also be utilized.

[00016] By providing the scoops **2,3,4,5** increased lift is believed to be attained on the disc **1**. In order to take advantage of the increased lift to provide for additional distance, the circumference of the lip **32** is weighted with the weighted member **7** so that the additional lift forces can be utilized in conjunction with the extra weight to provide what is believed to amount to extra

distance. Of course, if extra distance is not desired, the weighted member **7** can be removed from the disk **1** such as when playing with small children.

[00017] In the preferred embodiment Figures 1 and 2, the scoops **2-4** preferably utilize a mouth **22** having a width at the top surface **20** greater than a width of the tail **24** as measured from the sides as can be seen at the top **28** as can be seen from the drawings. This feature is believed to further assist in pushing the air as it enters the passage **26** above the top **20** of the disc **1** to the bottom **28** of the disc **1**.

[00018] Figures 4-6 show the left handed version, namely as a left hander would grab the disc it would twist counter-clockwise instead of clockwise like the embodiment of Figures 1-3. Accordingly, in this embodiment, a disc **11** is provided as the scoops **12,13,14** and **15**. Figures 5 and 6 also show the scoops **12,13,14** and **15** above a top **40** of the disc **11**. Figure 6 shows the disc **11** having a bottom surface **44** and a top surface **40**. It will be understood by the reference to the embodiment of Figures 1-3 that the similar operation is obtained for the embodiment of Figures 4-6 as it is obtained for the embodiment of Figures 1-3 except that this is designed for a left-handed operation or counter-clockwise spinning as opposed to clockwise spinning of a right handed operation of the presently preferred embodiment of Figures 1-3.

[00019] It is anticipated the disc will be injection molded, however, it may be formed in two other methods as well. Although no bottom view is provided with the figures, it will be understood for those skilled in the art that in the preferred embodiment the top **20** of the disk **1** terminates at each of the scoops **2,3,4,5** namely, that there is preferably no top surface **20** extending below the scoops **12,13,14,15**. However, in other embodiments, it may be possible for the top surface **20** to stop intermediate mouth **22** and the tail **24**. However, it is necessary for

each of the passages **26** to communicate the fluid from the top surface **20** to the bottom surface **28** through the mouth **22** of the scoops **2,3,4,5.**

[00020] Figure 9 shows the flight of discs **1,11** as path **9** as compared to prior art flight path **8** when played with by two people **100,102**. Figure 10 shows a single person **104** tossing one of discs **1,11** upwardly along path **110** and it returning along path **111**.

[00021] Figure 11 shows a second alternatively preferred embodiment **150** with scoops **152,154,156,158** on a top surface **160** of the disc **150**. Figures 12 and 13 show possible scoop mouth **162,164** embodiments. As this second alternative embodiment shows, different scoop configurations could be utilized. In these configurations, a scoop mouth **166** as shown in Figure 11 is wider than scoop tail **168**. Furthermore, in the preferred embodiment, the scoop tail connects to the top surface **160** of the disc **150** while the mouths **166** (**162** and **164**) are open so that as the air enters the mouth, it will be directed by the underside of the top surface **170** of the scoop downwardly from above the top surface **160** to below the disc **150** thereby assisting in providing lift when thrown by a right hand thrower in a clockwise manner for this embodiment.

[00022] Numerous alterations of the structure herein disclosed will suggest themselves to those skilled in the art. However, it is to be understood that the present disclosure relates to the preferred embodiment of the invention which is for purposes of illustration only and not to be construed as a limitation of the invention. All such modifications which do not depart from the spirit of the invention are intended to be included within the scope of the appended claims.

[00023] Having thus set forth the nature of the invention, what is claimed herein is: